

[3.0049]

A NEW SUBSPECIES OF *Plebejus (Icaricia) shasta* FROM WYOMING  
(LEPIDOPTERA, LYCAENIDAE)<sup>1</sup>

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Three subspecies of *Plebejus (Icaricia) shasta* (Edwards) are currently recognized (dos Passos, 1964): *shasta* (Edwards), *comstocki* Fox, and *minnehaha* (Scudder). These three subspecies may be separated by the color, and width of the outer margin of the dorsal surface. Males are best used for comparison as the differences are more distinct than in the females. The subspecies *minnehaha* exhibits a bright blue-violet color with relatively narrow brown or gray-brown margins; *shasta* is a darker violet with brown margins approximately double the width of those found in *minnehaha*; *comstocki*, which should probably be considered as a local race of *shasta* rather than a separate subspecies, is distinguished by its very wide borders and generally darker colors (Fox, 1924). The subspecies *shasta* and *comstocki* (types) are figured by Comstock (1927, Plate 54).

Scudder (1874) described *minnehaha* from a series of four specimens (2♂♂, 2♀♀), while Fox described *comstocki* from a series of thirty-five specimens (26 ♂♂, 9♀♀). It is not known by this author the number of specimens in the type series for the nominate species *shasta*. From specimens examined in various collections, it does not appear to be scarce.

The morphologic differences among the three subspecies rest in the dorsal surface color and width of the outer margin, as described above, and in the distal end of the valvae as shown in Figure 1. *Plebejus (Icaricia) shasta comstocki* has not been figured as it appears to be really a local race or altitudinal variation of *Plebejus (Icaricia) shasta shasta*.

Geographically, *Plebejus (Icaricia) shasta shasta* is recorded from the Sierras of California north through Oregon and Washington; *shasta comstocki* is re-

<sup>1</sup> This paper is published with the approval of the Director, Wyoming Agricultural Experiment Station, as Journal Paper no. 441. Accepted for publication June 20, 1970.

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corded from the type locality: Glacier Point, Yosemite National Park, California, and *shasta minnehaha* is found in North Dakota and Wyoming.

In the past, there has been some confusion concerning *Plebejus (Icaricia) shasta* in the Rocky Mountain region. Holland (1931) in the Butterfly book, page 268 has made the statement: "A rather small variety called *minnehaha* by Scudder is found on the high mountains of Colorado." This statement is the source of confusion. If one refers to Scudder's original description (1874) of *Agriades minnehaha*, now placed in *Plebejus*, Holland's error becomes apparent. First, there is no appreciable difference in size among the subspecies of this insect. Second, Scudder's butterfly was collected by J. A. Allen, a zoologist, who accompanied the Yellowstone Expedition of 1873. The collection locality was the Heart River Crossing, Dakotah [*sic*] Territory approximately fifty miles west of the Missouri River. This would place the type locality most probably in Grant Co., North Dakota where the present State Road 49 (between Glen Ullin and Elgin) crosses the Heart River. The elevation of the collection site is given as 1800' above sea level, hardly a high mountain area. The type series was collected in the river valley on 26 June, 1873.

Thus the name *Plebejus (Icaricia) shasta minnehaha* applies to a low altitude prairie insect, whose distinguishing morphology is noted above, rather than to an arctic-alpine subspecies. In the Intermountain Region there is found an insect which is distinct from the presently named subspecies. A new name for this form is proposed below.

In Wyoming, *P. (I.) s. minnehaha* is found on the prairies in the eastern portion of the state, usually in association with washes or stream beds. Records exist from Albany Co. (East of Laramie, 7500'; Sybille Canyon, 5400') and Converse Co. (4800'). It probably occurs in other prairie locations within the state, but has not been recorded simply because most collectors ignore the arid regions for the more inviting looking mountains. To date *P. (I.) s. minnehaha* has not been recorded from Colorado.

In July of 1953, F. Martin Brown collected a series of montane *Plebejus (Icaricia) shasta* on Powder River Pass, Johnson Co., Wyoming. He had intended to name the insect, but was diverted by more pressing matters and recently turned the series over to the author of this paper, who now takes pleasure in naming the insect after its collector.

### ***Plebejus (Icaricia) shasta browni* Ferris, NEW SUBSPECIES**

(Figures 1 and 2)

*Male*.—Dorsal surface: blue-violet; marginal fringes white; outer margin narrow (slightly wider on forewing than on hindwing) and brown to gray-brown in color; on hindwing the margin is partially broken suggesting between-the-vein spots on a grayish background; there is a cell-end dark bar on both wings, but it is quite faint on the secondaries. Ventral surface:

pale gray-brown (slightly darker in the males than in the females); the spots are brown narrowly ringed with pale gray to white; on the secondaries there is a marginal row of metallic green spots, often with dark centers, which are capped basally with orange and then brown; the region just basad from the spots is lighter in color than the remainder of the wing. Expanse (costal margin length): 1 cm.

*Female*.—Dorsal surface: brown with basal blue flush of the same hue as in the male, extending in some examples over half of the wings; on the secondaries there is a marginal row of dark spots capped basad with orange and forming a lunule pattern; cell-end dark bars are present as in the male with the forewing bar about double the width of that of the male. Ventral surface similar to male but paler in color. Expanse: 1.1 cm (length of costa).

High altitude specimens (above 10,000') are generally paler with more subdued markings than specimens from lower elevations.

The type series consists of eighty specimens, F. Martin Brown collector.

*Holotype*.—♂, Powder River Pass, 9700', Johnson Co., Wyoming, 28 July, 1953.

*Allotype*.—♀, same data and location as male.

*Paratypes*.—46 ♂♂, 32 ♀♀, same data and location as holotype.

It is interesting to note that there is remarkable uniformity in facies within the type series. Only four specimens (two pairs) are significantly different from the others. One pair resembles the high altitude subdued marking form, while the other pair resembles the prairie *minnehaha*.

The new subspecies is intermediate between the subspecies *shasta* and *minnehaha*. The width of the outer margin on the dorsal surface of the males is midway between that on *shasta* and *minnehaha*. The color and male genitalia are closer to *shasta* than to *minnehaha*, although *browni* appears brighter in color than *shasta*.

The differences between the high alpine form of *browni* and the lower montane form are not considered sufficient to warrant any nomenclatural distinction as in the case of *P. (I.) shasta shasta* (Edwards) and *P. (I.) s. comstocki* Fox. Occasionally rather small specimens of *browni* are taken at high altitude. As one collects from treeline to high mountain tops, a cline is observed with respect to color and size. This is typical of other montane species found in the Intermountain Region.

This author has not attempted to make a detailed range study of *shasta shasta*, *shasta comstocki*, *shasta minnehaha*, and *shasta browni*. Such a study has been undertaken by J. F. Emmel and O. Shields and will be published at a later date. Presently *Plebejus (Icaricia) shasta browni* is recorded from several locations in Johnson Co., Wyoming and in Colorado from Boulder, Chaffee, Clear Creek, Costilla, Gilpin, Gunnison, Hinsdale, Lake, Larimer, Mineral, Pitkin, San Juan, San Miguel, and Summit Cos. at suitable elevations. Both Comstock (1927) and Holland (1931) allude to the occurrence of *Plebejus shasta* in Idaho and Montana. If the insect does occur in these states, one would expect to find

subspecies *browni* in Idaho and the mountains of western Montana and *minnehaha* in eastern Montana.

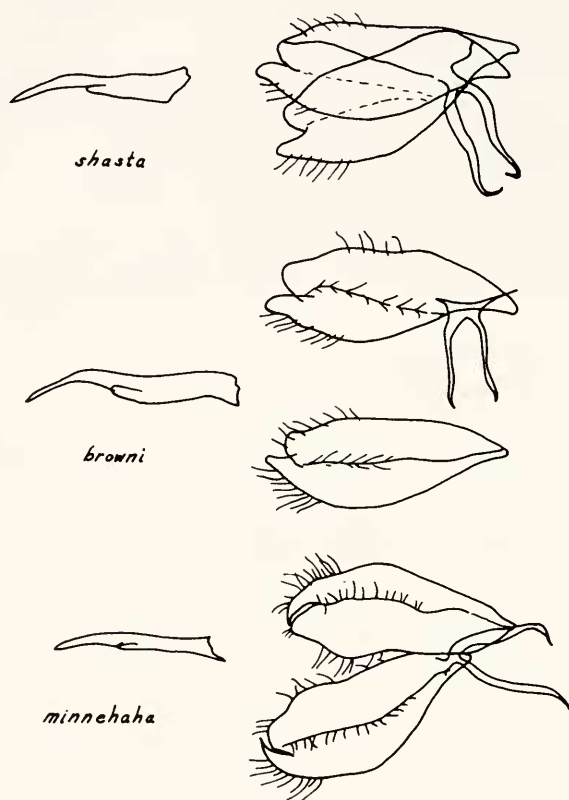


Figure 1. Male genitalia (aedeagus and valvae structures from slides) of *Plebejus (Icaricia) shasta shasta* (Yosemite National Park, California), *Plebejus (Icaricia) shasta browni* (Powder River Pass, Johnson Co., Wyoming), and *Plebejus (Icaricia) shasta minnehaha* (East of Laramie, Albany Co., Wyoming).

Paratype specimens of the new subspecies have been distributed as follows: Allyn Museum of Entomology: 1 pair; American Museum of Natural History: 2 pairs; Carnegie Museum: 2 pairs; United States National Museum: 1 pair; University of Wyoming Collection: 2 pairs; F. Martin Brown: 5 pairs; John F. Emmel: 4 pairs. The holotype, allotype, and remaining paratypes are presently placed in the author's collection.

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Figure 2. Dorsal and ventral surfaces of holotype male (left) and allotype female (right) of *Plebejus (Icaricia) shasta browni* Ferris.

**2.0049 A new subspecies of *Plebejus (Icaricia) shasta* from Wyoming (Lepidoptera, Lycaenidae).** *Abstract.*—The subspecific name *minnehaha* Scudder has been applied to one of the subspecies of *Plebejus (Icaricia) shasta* (Edwards) found in the Rocky Mountain region. Recent investigations have shown that the name *minnehaha* applies to a prairie subspecies from North Dakota. A new subspecific name *browni* Ferris is proposed for the montane insect found in the Rocky Mountains.

*Descriptors:* Lepidoptera; Lycaenidae; *Plebejus*; *Plebejus (Icaricia) shasta shasta*; *Plebejus (Icaricia) shasta comstocki*; *Plebejus (Icaricia) shasta minnehaha*; *Plebejus (Icaricia) shasta browni*.